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-2729

RESPONSES TO U.S. EPA COMMENTS ON THE INTEGRATED ENVIRONMENTAL MONITORING STATUS REPORT FOR SECOND QUARTER 1999

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

JANUARY 2000

U.S. DEPARTMENT OF ENERGY

RESPONSES TO U.S. EPA COMMENTS ON THE INTEGRATED ENVIRONMENTAL MONITORING STATUS REPORT FOR SECOND QUARTER 1999

SPECIFIC COMMENTS

1. Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.0 Pg.#: 1-3 Line #: 1 through 10 Code: C
Original Comment #: 1

Comment: The text states that total uranium was detected at location 12408 at a concentration of 184 micrograms per liter (µg/L). However, the elevation of this detection is not provided. The elevation at which this sample was collected should be reported. In addition, DOE should evaluate if downgradient monitoring wells 2070, 2398, 2069, 3069, and 21063 are screened at the appropriate depths based on this detection and present the results of this evaluation in the third quarter integrated environmental monitoring status (IEMS) report. It is important to accurately characterize the uranium plume in these areas because the extent of the extraction wells' capture zone is not well defined along the eastern edge of the plume.

Response: Because the Integrated Environmental Monitoring Status Report for Third Quarter 1999 has already been issued (December 1999), the requested information is provided in this response. The total uranium concentration of 184 micrograms per liter (µg/L) was detected at an elevation of approximately 499 feet above mean sea level (amsl) (20 feet below the water table). This datum, along with the rest of the data from Location 12408 was reported to the U.S. Environmental Protection Agency (EPA) via a facsimile on April 19, 1999 (refer to FAX No. 99-0007). For your convenience, a copy of this fax is attached to this comment response document (Attachment 1).

EPA is requesting that the U.S. Department of Energy (DOE) evaluate if Monitoring Wells 2070, 2398, 2069, 3069 and 21063 are screened at appropriate depths. The evaluation for each of these wells is as follows:

- The base of the 15-foot well screen in Monitoring Well 2398 is situated at an elevation of 511.3 feet amsl. Cross Section A-A' (Figure G-24) in Appendix G of the Baseline Remedial Strategy Report, Remedial Design for Aquifer Restoration (Task 1) illustrates that the screen in this well is at an appropriate depth for monitoring the uranium plume at this location. Monitoring Well 2070 is located east of Monitoring Well 2398. Although Monitoring Well 2070 is not on Cross Section A-A', it can be deduced from Cross Section A-A' that the appropriate monitoring elevation at Monitoring Well 2070 is approximately 515 to 495 feet amsl. The top of the well screen in Monitoring Well 2070 is at an elevation of 499 feet amsl. Cross Section A-A' is attached to this comment response document (Attachment 1).

- DOE does not currently monitor Monitoring Well 2069 because it has been replaced with property boundary Monitoring Well 2434. Monitoring Well 2434 is currently being sampled quarterly but will be dropped from routine Integrated Environmental Monitoring Plan (IEMP) monitoring beginning in January 2000. The 20 µg/L total uranium plume at this location is deeper than the elevation of the well screens in Monitoring Wells 2069 and 2434. As Cross Section B-B' (Figure G-25), found in Appendix G of the

Baseline Remedial Strategy Report illustrates, the plume at Monitoring Well Cluster 069 is found at the Type 3 well screen depth. The well screen in Monitoring Well 3069 is positioned appropriately. Cross Section B-B' is also attached to this comment response document (Attachment 1).

- EPA questioned whether or not the screen at Monitoring Well 21063 was positioned appropriately when reviewing the Integrated Environmental Monitoring Status Report for First Quarter 1999 (refer to Responses to U.S. EPA and OEPA Comments on the Integrated Environmental Monitoring Status Report for First Quarter 1999, Comment Response #11). In response to Comment #11, DOE explains that the screen in Monitoring Well 21063 is positioned appropriately.

Action: In future IEMP reports, DOE will also report the corresponding elevations of the direct push data.

2. Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.0 Pg.#: 1-3 Line #: 21 through 30 Code: C
Original Comment #: 2

Comment: The text refers to Figures 1-30 and 1-31 for profiles of total uranium concentrations in groundwater samples collected in December 1998 to January 1999 and March 1999, respectively. These figures suggest that the uranium plume is migrating downward into the aquifer near location 12373. In the December 1998 to January 1999 period, the 20-µg/L isoconcentration line at location 12373 is drawn at about the elevation contour for 470 feet above mean sea level (msl). In the March 1999 period, the 20 µg/L isoconcentration line at location 12373 is drawn at about the elevation contour for 460 feet above msl. The uranium isoconcentration line for the March 1999 period should be redrawn at the elevation contour for 450 feet above msl because the total uranium concentration at this elevation is 21 µg/L. In addition, DOE should evaluate whether the monitoring wells located downgradient of location 12373 are screened at appropriate intervals and present the results of this evaluation in the third quarter IEMS report.

Response: Because the Integrated Environmental Monitoring Status Report for Third Quarter 1999 has already been issued (December 1999), the requested information is provided in this response. DOE agrees that Figures 1-30 and 1-31 suggest that the uranium plume might be migrating downward into the aquifer near Location 12373. Figure 1-31 should have shown a small uranium plume (greater than 20 µg/L) at a depth of 450 feet amsl, similar to the small isolated plume depicted for Location 12369 as shown on Figure 1-30. The cross section shown in Figure 1-31 of the Integrated Environmental Monitoring Status Report for Second Quarter 1999 will be revised to honor this deep 21 µg/L total uranium concentration when it is published in the final report for the Re-Injection Demonstration Test Plan.

As explained below, when the March 1999 data are interpreted in context with Geoprobe® data collected before and after March 1999, the conclusion is that the uranium plume is not being pushed deeper at Location 12373. Also, the greater than 20 µg/L uranium concentration at Location 12373, at an elevation of 450 feet amsl was only detected in March of 1999. This issue is further discussed in "Responses to OEPA Comments on the Integrated Environmental Monitoring Status Report for Second Quarter 1999," Comment Response #5 (transmitted in December of 1999). All of the Geoprobe® data collected for the re-injection demonstration will be published together in the final report for the Re-Injection Demonstration Test Plan. DOE feels that EPA will also reach the same conclusions DOE has reached once they

can see all of the Geoprobe® data collected during the past year (Rounds A through F) together and interpret the data from all of the rounds in context with one another.

Subsequent to March of 1999, Geoprobe® sampling (June/July of 1999 and September/November of 1999) has shown that a small uranium plume (greater than 20 µg/L) is not present at Location 12373 at a depth of 450 feet amsl. The June/July 1999 data were published in the Integrated Environmental Monitoring Status Report for Third Quarter 1999. The September/November 1999 data will be published in the Integrated Environmental Monitoring Status Report for Fourth Quarter 1999, to be submitted in March of 2000. Overall, Geoprobe® sampling conducted over the course of the one year re-injection demonstration (September 1998 through November 1999) shows that the base of the 20 µg/L uranium plume at Location 12373 has fluctuated between approximately 458 feet amsl and approximately 470 feet amsl. Data collected in June of 1998, prior to any re-injection, places the base of the 20 µg/L total uranium plume at Location 12373 at an elevation of approximately 458 feet amsl. The base of the 20 µg/L total uranium plume at Location 12373 in March of 1999 was at approximately 460 feet amsl, nearly the same elevation.

Geoprobe® Location 12373 is located just north of Willey Road. The closest downgradient wells would be Monitoring Wells 6880 and 6881. These wells are located on the southern edge of an off-property farm approximately 1200 feet south of Willey Road. The issue of whether or not the screens in Monitoring Wells 6880 and 6881 are properly positioned to monitor the uranium plume is addressed in the "Responses to U.S. EPA and OEPA Comments on Proposed Changes Resulting from the 1999 Annual Review of the Integrated Environmental Monitoring Plan, Revision 1," Comment Response #3. DOE requests that EPA refer to that comment response which is included in this transmittal. As explained in that response, DOE believes that the well screens are positioned at the correct depth to monitor the uranium plume.

Action: DOE will revise the cross-section shown in Figure 1-31 to honor the 21 µg/L total uranium datum posted for an elevation of 450 feet amsl, when the cross section is published in the final report for the Re-Injection Demonstration Test Plan.

3. Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.0 Pg.#: 1-3 Line #: 42 through 47 Code: C
Original Comment #: 3

Comment: The text states that the integrity of monitoring well 2648 was compromised and that surface water could have entered the well during storm events from December 7, 1998, to February 2, 1999. The third quarter IEMS report should (1) describe the type and detail of monitoring well integrity compromise; (2) report the amount of rainfall from December 7, 1998, through February 2, 1999: (3) provide surface water analytical results for surface water samples collected in the well area; and (4) present the historical total uranium concentrations detected in this well.

Response: Because the Integrated Environmental Monitoring Status Report for Third Quarter 1999 has already been issued (December 1999), the requested information is provided in this response.

1) In early 1999 the integrity of Waste Pit Area Monitoring Well 2648 was compromised by surface remediation activities. For a short period of time (December 7, 1998 to February 2, 1999) ponded surface water could have entered the well during storm events. A section of riser pipe was added to the

well on February 2, 1999, which brought the top of the well up to an elevation sufficient to prevent ponded surface water flow into the well.

2) The amount of rainfall from December 7, 1998 to February 2, 1999 was 8.96 inches.

3) A surface water sample taken on February 4, 1999 from water ponding around the well head contained 155 µg/L of total uranium.

4) Prior to the surface water infiltration, historical uranium concentrations at this well ranged from 9.61 to 57.3 µg/L. On February 10, 1999, after the well was repaired, it was pumped in an effort to remove any uranium contamination that might have migrated down the well from surface contamination. Samples were taken after three and 10 well volumes were pumped, and the total uranium concentrations in the pumped groundwater measured 19 and 18 µg/L, respectively. The total uranium concentration from the second quarter 1999 sampling event indicated a concentration of 73.74 µg/L.

Action: Concentrations from this well will continue to be monitored and presented in future IEMP reports.

4. Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.0 Pg.#: 1-4 Line #: 38 through 41 Code: C
Original Comment #: 4

Comment: The text proposes to discontinue water level measurements in Type 3 monitoring wells. These measurements should continue to be made on at least an annual basis.

Response: This comment pertains to the same issue as raised in "Responses to U.S. EPA and OEPA Comments on Proposed Changes Resulting from the 1999 Annual Review of the Integrated Environmental Monitoring Plan, Revision 1," Comment #5. As previously noted, DOE does not believe that Type 3 water level data adds any value to the interpretation of aquifer remediation progress. DOE has proposed that Type 3 water level data not be collected on a routine basis. In response to this request, EPA has proposed cutting back the collection of Type 3 water level data from quarterly to annually. OEPA wants to continue with a quarterly measurement effort, but decrease the number of locations from approximately 63 to 38. DOE suggests that this be discussed at an upcoming meeting. DOE will continue to collect and provide Type 3 water level data to the agencies until final resolution is reached.

Action: DOE, EPA, and OEPA will meet on this topic to reach a resolution.

5. Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.0 Pg.#: 1-7 and 1-8 Line #: Not Applicable (NA) Code: C
Original Comment #: 1

Comment: The text references Tables 1-6 through Table 1-8 for monitoring data for Cells 1 through 3 respectively. The second column for each monitoring point presents information on the range of analytical values and the maximum first quarter result. In many cases, the maximum first quarter result is less than the highest value of the range of analytical values. This apparent discrepancy should be corrected in future IEMS reports.

Response: This comment is similar to "Responses to OEPA Comments on the Integrated Environmental Monitoring Status Report for Second Quarter 1999," Comment #1, in that it points out the need to clarify the information provided in the on-site disposal facility data tables, which were transmitted in December 1999. The response to Comment #1 is provided here for convenience:

"This comment raises the issue that the presentation of the material in the on-site disposal facility reporting section could be improved. The U.S. Department of Energy (DOE) agrees with the commentor that the titles of Tables 1-6, 1-7, and 1-8 may lead to confusion and that without additional explanation, the information in the tables could be confusing. Highlighting was used to facilitate review of current sample data versus total sample data for each monitoring point.

With these tables, DOE is attempting to provide a holistic approach to evaluating the analytical information on the constituents detected during the reporting period. As identified in the Groundwater/Leak Detection and Leachate Monitoring Plan, it is important to look at the data from each of the monitored horizons together as a whole so that relationships of the constituent concentrations between the various monitored horizons can be observed. Therefore, it is prudent to continue to present the data for detected constituents by horizon for each cell. However, to clarify the information being presented, the following changes will be made:

The titles of the tables will be changed to: "On-Site Disposal Facility Cell 1, 2, or 3 Data Summary for Constituents Detected during (first, second, third, fourth) Quarter and Year."

The following explanation of the content of the on-site disposal facility tables is being provided for clarification and will be included in future Integrated Environmental Monitoring Plan (IEMP) reports:

- Constituents posted on these tables were detected during the reporting period in at least one of the four monitored horizons (i.e., leachate collection system [LCS], leak detection system [LDS], horizontal till well, or one of the Great Miami Aquifer wells).

- For each monitored horizon and each constituent detected during the reporting period, the following four pieces of information are provided:

  - Row 1, Column 1, total number of samples with detections since sampling began at that monitoring point / total number of samples analyzed since sampling began at that monitoring point (highlighted in blue)

  - Row 1, Column 2, range of results from monitoring point since sampling began at that monitoring point (highlighted in blue)

  - Row 2, Column 1, total number of samples with detections for the reporting period (highlighted in green)

  - Row 2, Column 2, range of results from the monitoring point for the reporting period (highlighted in green).

DOE agrees with the commentor's suggestion that as much information as possible be provided in tables (and previously agreed upon figures such as the LDS accumulation rate figures) rather than in the text. The LCS and LDS volumes and LDS accumulation rates can be provided in one table similar to the one provided by the commentor; however, the analytical data should be provided in a separate table (e.g., Tables 1-6 through 1-8 of the Integrated Environmental Monitoring Status Report for Second Quarter 1999). The following format is suggested:

On-Site Disposal Facility LCS and LDS Summary Flow Volume Data for Third Quarter 1999

Month	LCS Volume in Gallons (all cells combined)	Cell 1 LDS		Cell 2 LDS	
		Gallons pumped	Accumulation rate[a] (period)	Gallons pumped	Accumulation rate[a] (period)
July	72,053	105	0.87 (6/25 – 7/14)	882	4.59 (July Average)
August	282,418	84	0.63 (7/14 – 8/4)	474	3.1 (August Average)
September	69,561	96	0.48 (8/4 – 9/4)	102	0.9 (9/11)

[a]Accumulation rate is in gallons per acre per day and is measured for each fill cycle, which ends each time the LDS inner containment vessel is pumped out. In months where more than one rate was calculated, the average for the month is provided and noted.

However, rather than a tabular format, the accumulation rates are provided on figures in a graphical format (e.g., Figures 1-37 and 1-38 of the Integrated Environmental Monitoring Status Report for Second Quarter 1999). The accumulation rates will continue to be provided in this format for future IEMP quarterly status reports until consensus is reached on a revised reporting protocol. (Refer to Figures 2-4 and 2-5 of the Integrated Environmental Monitoring Status Report for Third Quarter 1999.)"

Action: The Action for Comment #1 in the "Responses to OEPA Comments on the Integrated Environmental Monitoring Status Report for Second Quarter 1999" is as follows:

"DOE will update the on-site disposal facility analytical table titles in future IEMP quarterly status reports to: "On-Site Disposal Facility Cell 1, 2, or 3 Data Summary for Constituents Detected during (first, second, third, fourth) Quarter and Year". DOE will discuss responses with the Ohio Environmental Protection Agency (OEPA) during the weekly site conference call to reach consensus on desired reporting formats for the on-site disposal facility information. LCS/LDS flow volume tables will be provided in future IEMP quarterly status reports upon DOE and OEPA agreement (beginning in the year 2000, if so agreed)."

ATTACHMENT 1

DOCUMENTATION ON SCREEN DEPTH INFORMATION FOR MONITORING WELLS 2070, 2398, 2069, 3069, AND 21063 (Comment Response #1)

2729

FLUOR DANIEL FERNALD

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FACSIMILE LEAD SHEET

No. of Pages: 12
(Including Lead Sheet)

FAX NO: F:SWP(ARWWP):99-0007

DATE: April 19, 1999

TO: Distribution

COMPANY NAME: Fluor Daniel Fernald

LOCATION: FERNALD

FAX NO. TO BE CALLED: See Below

FROM: Dave Brettschneider, FDF — TELEPHONE NO.: (513) 648-5814
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John Kappa, DOE-FEMP — TELEPHONE NO.: (513) 648-3149

PROJECT NAME: Fernald Environmental Mgmt. CONTRACT NO.: DE-AC24-92OR21972

MESSAGE

SUBJECT: 1999 ARWWP GEOPROBE DATA TABLES

Distribution:

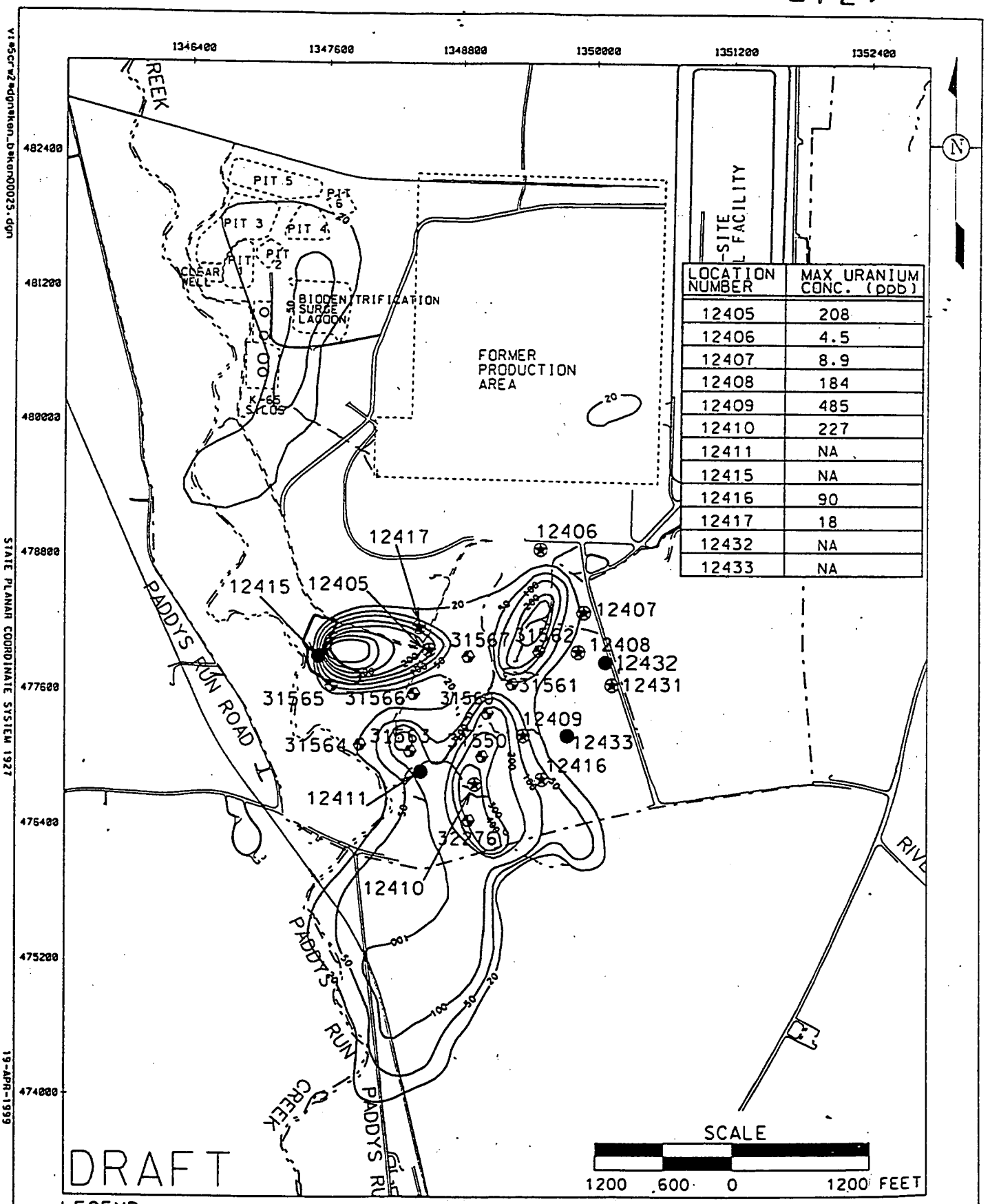
Frances Barker	Tetra Tech	Fax #(312) 938-0118
Jim Saric	USEPA	Fax #(312) 353-8426
Tom Schneider	OEPA	Fax #(937) 285-6249
Mark Schupe	HSI Geo Trans	Fax #(703) 444-1685

Per our discussion on 4/13, attached please find: 1) a summary table depicting locations and completion dates, 2) a map showing planned and completed locations, and; 3) the data tables for the 9 completed locations. Note location 12409 was completed on 4/14 and had a high of 485 ppb uranium. We are currently probing at location 12433 (400' east of 12409) and 12432 (300' east of 12408). Give one of us a call if you have questions.

DJB/WAH/JK/

c w/enclosure:

K. A. Broberg, FDF	Project File Record Storage #53100.1.1
R. J. Janke, DOE-FEMP	Project File Record Storage #53300.1.1
C. A. Smyser, FDF	



LOCATION NUMBER	MAX URANIUM CONC. (ppb)
12405	208
12406	4.5
12407	8.9
12408	184
12409	485
12410	227
12411	NA
12415	NA
12416	90
12417	18
12432	NA
12433	NA

LEGEND:

- COMPLETED GEOPROBE LOCATIONS
- EXTRACTION WELL LOCATIONS
- FEMP BOUNDARY
- GEOPROBE LOCATIONS TO BE COMPLETED
- APPROXIMATE EXCAVATION BOUNDARY FOR INACTIVE FLYASH PILE

000010

LOCATION MAP

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STATE PLANAR COORDINATE SYSTEM 1927
19-APR-1999

1999 ARWWP GEOPROBE PROGRAM

#	LOCATION #	DATE COMPLETED	DATA TO EPA's
1	12405	1/26	4/19
2	12417	2/1	4/19
3	12406	3/2	4/19
4	12407	3/30	4/19
5	12408	3/31	4/19
6	12409	4/14	4/19
7	12416	4/7	4/19
8	12410	4/7	4/19
9	12411		
10	12415		
11	12431	4/9	4/19
12	12432		
13	12433		
14			
15			
16			

GEOPROBE 12405:

Easting '83 = 1348496.20
Northing '83 = 477963.64
Reference Elevation = 578.05 feet amsl
Depth to Water Table = 60.7 feet
Work Duration - January 19 - January 26, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 517.35 feet amsl)	Total Uranium Conc. (µg/L)
1	516.35	61.7	1	208
2	507.35	70.7	10	108
3	497.35	80.7	20	35
4	487.35	90.7	30	9.2
5	477.35	100.7	40	4.8
6	467.35	110.7	50	1.1
7	457.35	120.7	60	1.5
8	447.35	130.7	70	1.4

GEOPROBE 12417:

Easting '83 = 1348407.56
Northing '83 = 478165.55
Reference Elevation = 575.45 feet amsl
Depth to Water Table = 59.0 feet
Work Duration - January 27 - February 1, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 516.45 feet amsl)	Total Uranium Conc. (µg/L)
1	515.45	60.0	1	18
2	506.45	69.0	10	13
3	496.45	79.0	20	5
4	486.45	89.0	30	1.3
5	476.45	99.0	40	2.3
6	466.45	109.0	50	1.6
7	456.45	119.0	60	8.6
8	446.45	129.0	70	6.4

GEOPROBE 12406:

Easting '83 = 1349707.68
Northing '83 = 478870.07
Reference Elevation = 575.68 feet amsl
Depth to Water Table = 58.8 feet
Work Duration - February 24 - March 2, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 516.88 feet amsl)	Total Uranium Conc. (µg/L)
1	515.88	59.8	1	1.6
2	506.88	68.8	10	4.5
3	496.88	78.8	20	3.0
4	486.88	88.8	30	1.0
5	476.88	98.8	40	2.8
6	466.88	108.8	50	1.4
7	456.88	118.8	60	0.6
8	446.88	128.8	70	0.4

GEOPROBE 12407:

Easting '83 = 1349891.09
Northing '83 = 478218.07
Reference Elevation = 578.52 feet amsl
Depth to Water Table = 63.0 feet
Work Duration - March 25 - March 30, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 515.52 feet amsl)	Total Uranium Conc. (µg/L)
1	514.52	64.0	1	N/A
2	505.52	73.0	10	7.9
3	495.52	83.0	20	8.9
4	485.52	93.0	30	5.1
5	475.52	103.0	40	1.2
6	465.52	113.0	50	1.7
7	455.52	123.0	60	2.6

GEOPROBE 12408:

Easting '83 = 1349833.05
Northing '83 = 477806.19
Reference Elevation = 577.69 feet amsl
Depth to Water Table = 59.0 feet
Work Duration - March 24 - March 31, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 518.69 feet amsl)	Total Uranium Conc. (µg/L)
1	517.69	60.0	1	13.7
2	508.69	69.0	10	76
3	498.69	79.0	20	184
4	488.69	89.0	30	27
5	478.69	99.0	40	4.9
6	468.69	109.0	50	3.8
7	458.69	119.0	60	4.5
8	448.69	129.0	70	8.0

GEOPROBE 12409:

Easting '83 = 1349347.26
Northing '83 = 477184.56
Reference Elevation = 573.68 feet amsl
Depth to Water Table = 56.0 feet
Work Duration - April 8 - April 14, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 517.68 feet amsl)	Total Uranium Conc. (µg/L)
1	516.68	57.0	1	5.4
2	507.68	66.0	10	8.9
3	497.68	76.0	20	334
4	487.68	86.0	30	485
5	477.68	96.0	40	318
6	467.68	106.0	50	79
7	457.68	116.0	60	29
8	447.68	126.0	70	7.0
9	437.68	136.0	80	~5
10	427.68	146.0	90	~3

GEOPROBE 12416:

Easting '83 = 1349526.61
Northing '83 = 476809.30
Reference Elevation = 580.55 feet amsl
Depth to Water Table = 63.0 feet
Work Duration - April 1 - April 7, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 517.55 feet amsl)	Total Uranium Conc. (µg/L)
1	516.55	64.0	1	3.7
2	507.55	73.0	10	90
3	497.55	83.0	20	29
4	487.55	93.0	30	1.6
5	477.55	103.0	40	1.6
6	467.55	113.0	50	2.5
7	457.55	123.0	60	1.5
8	447.55	133.0	70	3.1

GEOPROBE 12410:

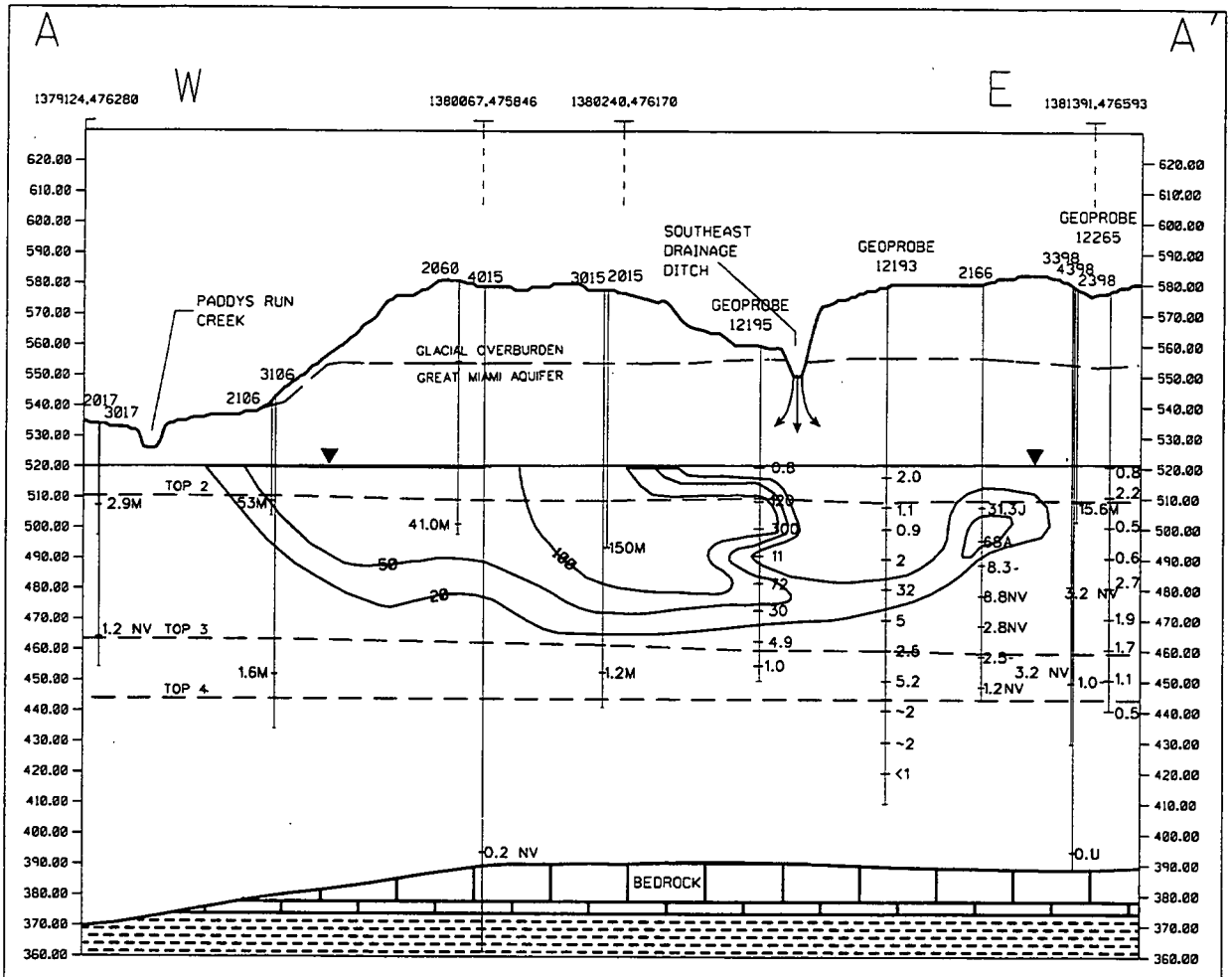
Easting '83 = 1348899.40
Northing '83 = 476733.17
Reference Elevation = 546.22 feet amsl
Depth to Water Table = 27.5 feet
Work Duration - March 31 - April 7, 1999

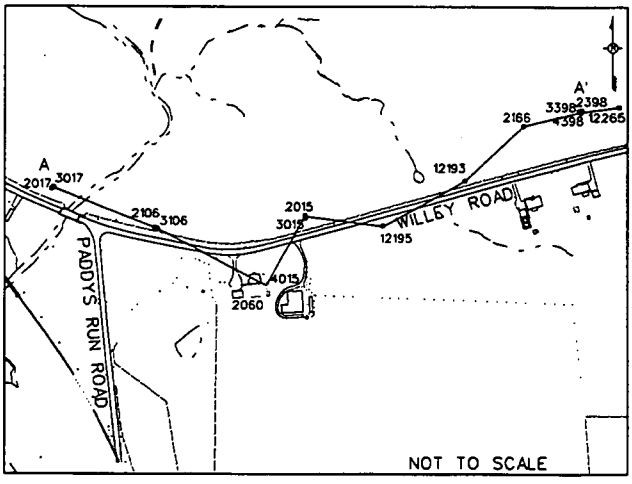
Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 518.72 feet amsl)	Total Uranium Conc. (µg/L)
1	517.72	28.5	1	2.8
2	508.72	37.5	10	3.8
3	498.72	47.5	20	40
4	488.72	57.5	30	227
5	478.72	67.5	40	108
6	468.72	77.5	50	17.5
7	458.72	87.5	60	8.3
8	448.72	97.5	70	17

GEOPROBE 12431:

Easting '83 = 1350130.49
Northing '83 = 477650.12
Reference Elevation = 586.84 feet amsl
Depth to Water Table = 68.5 feet
Work Duration - April 7 - April 9, 1999

Sample Point	Elevation (ft amsl)	Depth Below Surface (ft)	Depth Below Water Table (@ 518.34 feet amsl)	Total Uranium Conc. (µg/L)
1	517.34	69.5	1	5.8
2	508.34	78.5	10	1.1
3	498.34	88.5	20	1.4
4	488.34	98.5	30	2.4
5	478.34	108.5	40	1.0
6	468.34	118.5	50	2.0
7	458.34	128.5	60	0.7
8	448.34	138.5	70	0.4





LEGEND:

+ 77.1 TOTAL URANIUM IN GROUNDWATER (ug/L)

REPRESENTS INFILTRATION OF "CLEAN" SURFACE WATER

DATA QUALIFIERS:

NV = NONVALIDATED
\- = VALIDTED, NOT QUALIFIED
J = VALIDATED, ESTIMATED
M = MAXIMUM OF 1996 3rd., AND 4th. QUARTER DATA

NOTE:

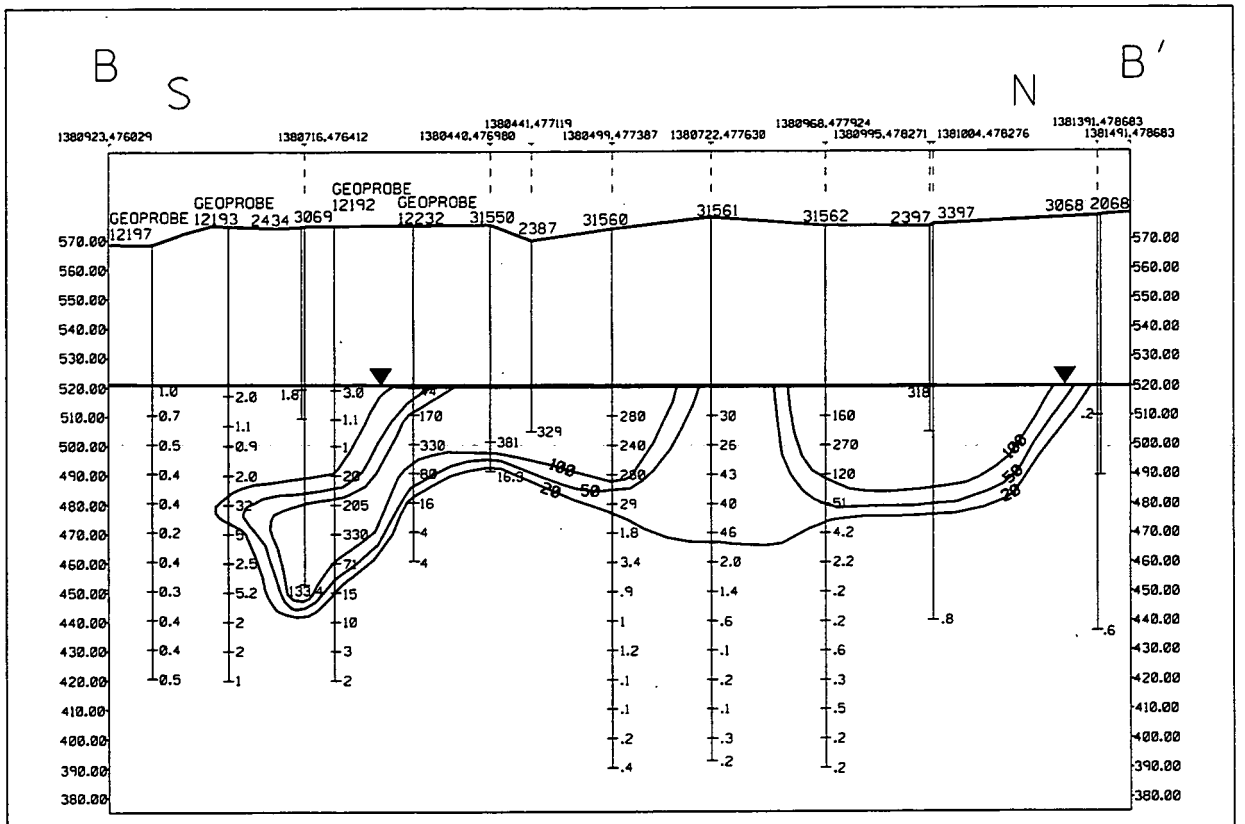
NON-GEOPROBE VALUES ARE FROM 1993 SNAPSHOT DATA UNLESS QUALIFIED WITH AN "M".
THE WATER ELEVATION SHOWN IS ESTIMATED.

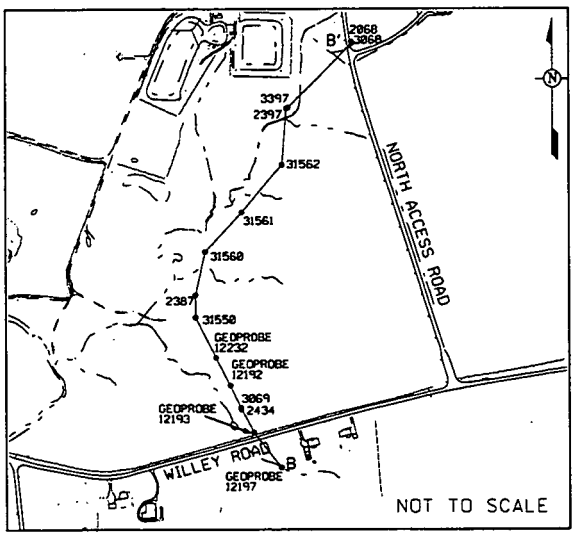
000021

FINAL

SCALE
500 250 0 500 FEET

FIGURE G-24. TOTAL URANIUM IN GROUNDWATER CROSS-SECTION A-A'





LEGEND:

+.1 TOTAL URANIUM IN GROUNDWATER (ug/L)

NOTE:

NON-GEOPROBE VALUES ARE FROM 1993 SNAPSHOT DATA. VALUES FOR EXTRACTION WELLS 31550, 31560, 31561 AND 31562 WERE COLLECTED WHEN THE WELLS WERE INSTALLED BY HYDROPUNCH

FINAL

000022

SCALE

650 325 0 650 FEET

FIGURE G-25. TOTAL URANIUM IN GROUNDWATER CROSS-SECTION B-B'